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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,899	10/22/2003	Seiichi Arakawa	9369-94US (U01-161916C/KK)	6365
570	7590	12/19/2005	EXAMINER	
AKIN GUMP STRAUSS HAUER & FELD L.L.P. ONE COMMERCE SQUARE 2005 MARKET STREET, SUITE 2200 PHILADELPHIA, PA 19103			POULOS, SANDRA K	
			ART UNIT	PAPER NUMBER
			1714	

DATE MAILED: 12/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/690,899

Applicant(s)

ARAKAWA ET AL.

Examiner

Sandra K. Poulos

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>10/22/03, 4/12/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:
 - a. Abstract; Page 1, line 4; page 4, second paragraph: "engine cooling water system" should be preceded by "an."
 - b. Page 6, last paragraph; page 7, second paragraph: "preferable" should be "preferably."

Claim Objections

2. Claims 1-6 are objected to because of the following informalities:
"Engine cooling water system" should be preceded by "an."

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 discloses that the total content of nylon 66 (A), the aromatic polyamide resin (B), and nylon 12 (C) is 100%; however, in the same claim it is recited that the polyamide is "comprising" (A), (B), and (C). Claim 1 is unclear because "comprising" indicates that there could be other components but it is contradicted if (A), (B), and (C)

Art Unit: 1714

are in a total of 100%. Claims 2 and 3 are unclear because the aromatic polyamide comprises the terephthalic acid and isophthalic acid but then the total content of the terephthalic acid unit and isophthalic acid unit are 100% of the aromatic polyamide, which as in claim 1, is contradictory.

Claims 4-6 are rejected under 35 U.S.C. 112, second paragraph, as being dependent upon a rejected base claim.

It is to be noted that for the purposes of examination, the examiner has assumed that the composition is open to other components, i.e. that that word "comprising" has overruled the recitation that the named components compose 100% of the composition.

Additionally, claim 5 is rejected because this claim contains limitations that are drawn to both a composition and an article (i.e. an engine). Case law holds that a single claim that claims both a composition and the method of using it is indefinite under U.S.C. 112, second paragraph. See *Ex Parte Lyell*, 17 USPQ 2d 1548 (Bd. Pat. App. 7 Inter. 1990).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

Art Unit: 1714

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi (WO 95/20630) in view of Katayama et al (US 5,795,931).

Hayashi '630 discloses a polyamide composition used in automotive cooling system parts (pg 2, lines 21-26). Hayashi '630 discloses that the polyamide resin composition has the required characteristics for under-the-hood parts of automobiles (pg 5, lines 2-4) and may be used for engine covers, air intake manifolds, radiator tanks (pg 6, lines 31-36). The polyamide composition contains: (A) 20-90 wt% of a polyamide resin containing: (i) 10-99 wt% an aromatic polyamide containing a carboxylic acid component derived from terephthalic acid or mixture of terephthalic and isophthalic acid in which the isophthalic acid constitutes 40 mole% or less of the mixture, and an aliphatic diamine component derived from a mixture of hexamethylene diamine and 2-methylpentamethylene; and (ii) 1-90 wt% of at least one polyamide selected from the group consisting of polyamides containing repeat units derived from dicarboxylic acids

Art Unit: 1714

and aliphatic diamines and polyamides containing repeat units derived from aliphatic aminocarboxylic acids; and (B) 10-70 wt% inorganic filler (pg 5).

Hayashi '630 discloses examples of the aliphatic polyamide component (ii) are nylon 66 and nylon 12 (pg 5, lines 35-36; pg 6, line 1). The aromatic polyamide component (i) should not be less than 10 wt% because there will be no improvement in heat resistance and calcium chloride resistance for automotive parts (pg 6, lines 22-30). The inorganic filler (B) is preferably glass fibers (pg 7, lines 9-12). In examples 1-3 and comparative examples 1-2, Hayashi '630 shows in Tables I-III that the combination of aromatic polyamide, nylon 66, and glass fibers is superior to the combination of aromatic polyamide and glass fibers (comp ex 1) or nylon 66 and glass fibers (comp ex 2). As demonstrated in Table III, when an aromatic polyamide and glass fibers are combined, the calcium chloride resistance is sufficient but the fluidity is poor; and when nylon 66 and glass fibers are combined, the fluidity is sufficient but the calcium chloride resistance is poor. Thus, fluidity is improved by the addition of nylon 66 and calcium chloride resistance is improved by addition of an aromatic polyamide (Tables I-III, pages 10-13).

Hayashi '630 discloses nylon 66 and nylon 12 as examples of aliphatic polyamides that may be used in the composition (pg 5, lines 35-36; pg 6, line 1), however, he is silent with respect to the combination of nylon 66 and nylon 12.

Katayama '931 discloses an injection welding material that is excellent in calcium chloride resistance that comprises: (A) 100 parts by weight of a polyamide resin mixture comprising: (A1) 90 to 70% by weight of a polyamide copolymer comprising 2 to 25% by

Art Unit: 1714

weight of polyamide 6 component and 98 to 75% by weight of polyamide 66 component and (A2) 10 to 30% by weight of polyamide 12 resin and (B) 5 to 150 parts by weight of an inorganic filler (abstract; col 1, lines 4-9, 64-67; col 2, lines 1-11). Among fillers that are particularly preferred are glass fibers (col 2, lines 54-67) and glass fibers are used in the examples (col 4-5, examples 1-3). Polyamide 12 should be greater than 10% by weight, otherwise there is little improvement in calcium chloride resistance (col 2, lines 50-53). If it exceeds 30 wt%, the heat stability is reduced (col 2, lines 50-53).

Katayama '931 discloses that when polyamide 6 or polyamide 12 is used alone, it is excellent in welding property but cannot be used at high temperature because of its poor heat resistance (col 1, lines 20-42). When polyamide 66 is used alone, it shows excellent heat resistance but has disadvantage in welding property (col 1, lines 20-42). Particularly, its use in seal-molding causes poor adhesion. In addition, when obtained parts are used as underhood parts of an automobile, they are attacked by calcium chloride, zinc chloride and the like metal halides used as antifreezing agents for road surface, so that cracks are formed within a short period of time and physical properties therefore cannot be maintained (col 1, lines 20-42).

It would have been obvious to one of ordinary skill in the art to include nylon 12 in the composition disclosed by Hayashi '630. One would have been motivated to do so because Katayama '931 discloses that the combination of nylon 66 and nylon 12 offsets the disadvantageous effects of calcium chloride on automobile parts that would occur if only one of nylons were used rather than both. Hayashi '630 is concerned with the deleterious effects of calcium chloride on automotive parts like the cooling system, and

Art Unit: 1714

discloses a composition of aromatic polyamide, glass fibers, and nylon 66 but with no nylon 12. One would have added from 10-30 wt% of nylon 12 to Hayashi's composition in the expectation of even greater calcium chloride resistance, thereby obtaining the cited present claims.

5. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi (WO 95/20630) in view of JP 57-080448, wherein the JPO abstract is used hereafter.

The discussion with respect to Hayashi '630 in paragraph 5 above is incorporated herein by reference.

JP '448 discloses a polyamide composition that raises resistance to environmental stress cracking caused by metal halides. The composition contains 20-80% nylon 66, 20-80% nylon 12, and 10-60 wt% glass fibers.

It would have been obvious to one of ordinary skill in the art to include nylon 12 in the composition disclosed by Hayashi '630. One would have been motivated to do so because JP '448 discloses that the combination of nylon 66, nylon 12, and glass fibers raises resistance to environmental stress cracking caused by metal halides. Hayashi '630 is concerned with the deleterious effects of calcium chloride on automotive parts like the cooling system, and discloses a composition of aromatic polyamide, glass fibers, and nylon 66 but with no nylon 12. One would have added from 20-80 wt% of nylon 12 to Hayashi's composition in the expectation of even greater calcium chloride resistance, thereby obtaining the cited present claims.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

JP 53006355 A (abstract) discloses a mixture of aliphatic polyamides (such as nylon 66 and nylon 12) and aromatic polyamides.

JP 2003-083423 (abstract and machine translation) discloses a composition with nylon 66, nylon 12, and glass fibers.

Avakian et al (US 5032635 A) disclose the mixtures of polyamide 6,6, polyamide 12, polyamide 6/1 which may further comprise glass fibers.

Moriwaki et al (US 5,250,604 and US 5,492,980) disclose a composition of an aliphatic polyamide, aromatic polyamide, and glass fibers.

Terashima et al (US 4,981,920) discloses an automotive composition comprising a copolyamide of nylon 66 and nylon 6, nylon 12, an aromatic polyamide, PPO, and glass fibers.

Yamamota et al (US) disclose a polyamide composition with an aromatic polyamide.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sandra K. Poulos whose telephone number is (571) 272-6428. The examiner can normally be reached on M-F 7:00-4:30, alternate Fridays off.

Art Unit: 1714

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SKP

Sandra K. Poulos
12/11/05

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